

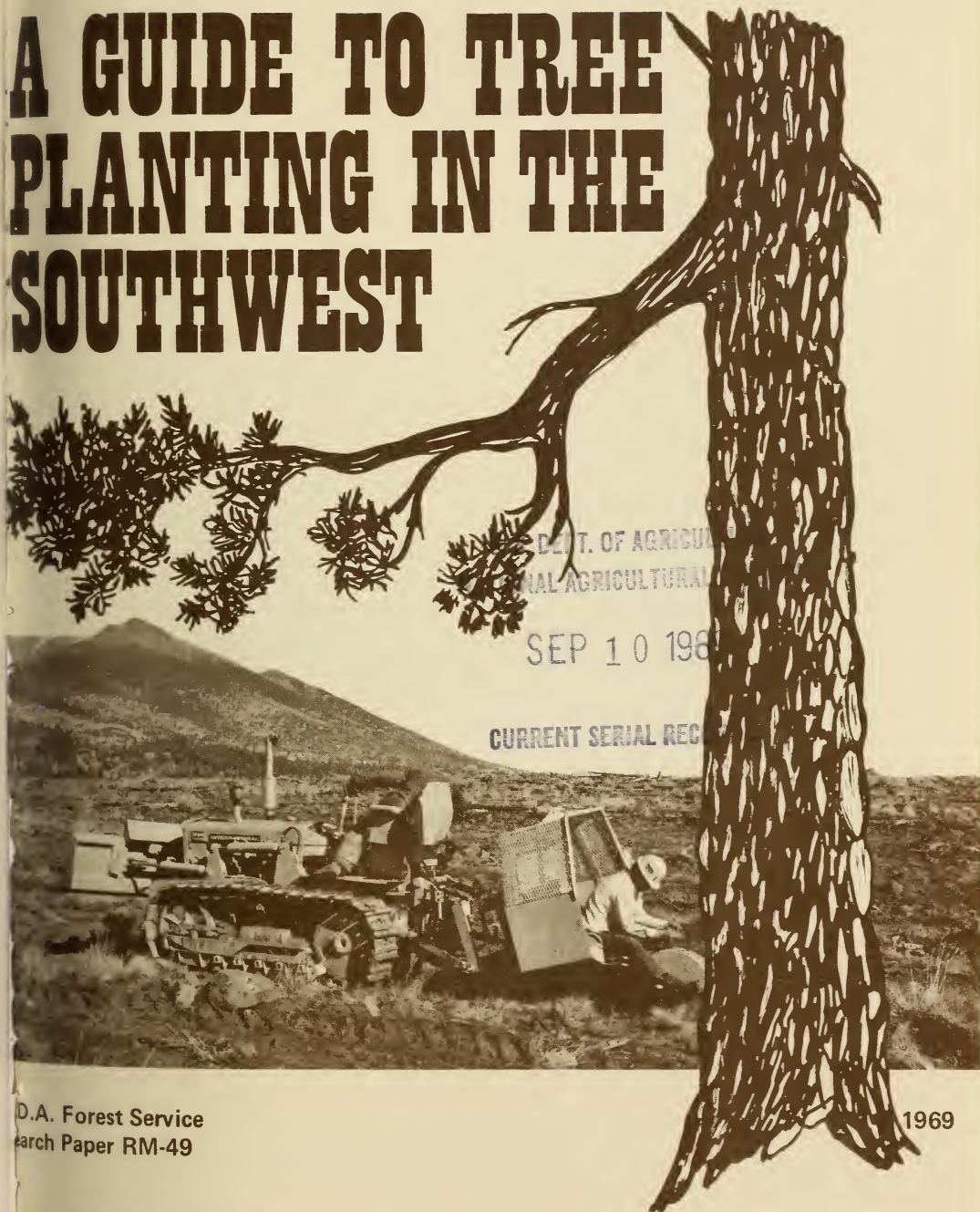
Historic, Archive Document

Do not assume content reflects current scientific knowledge, policies, or practices.



HERE'S HOW

A GUIDE TO TREE PLANTING IN THE SOUTHWEST



U.S. DEPT. OF AGRICULTURE
NATIONAL AGRICULTURAL LIBRARY

SEP 10 1969

CURRENT SERIAL RECORD

U.S. Forest Service
Research Paper RM-49

1969

DEPARTMENT OF AGRICULTURE • FOREST SERVICE
SOUTHWESTERN FOREST AND RANGE EXPERIMENT STATION

HERE'S HOW— A Guide to Tree Planting in the Southwest

By

Gilbert H. Schubert

Robert W. Pearl

L. J. Heidmann



Over a half-million acres of commercial timberland need to be reforested in Arizona, New Mexico, and the San Juan Basin of Colorado. Coniferous forests, mostly ponderosa pine, occupied these acres. To establish a new crop of trees on these dry, open sites will take special effort and skill. However, experience and research have shown that planting can and will succeed, if done:

with the **RIGHT STOCK**
in the **RIGHT PLACE**
at the **RIGHT TIME**
in the **RIGHT WAY**

In this guide we have summarized the main points that will help you do a better job of getting the new forests started.

THE RIGHT STOCK

By "Right Stock" we need to consider seed origin, seedling quality, and tree species.

SEED ORIGIN



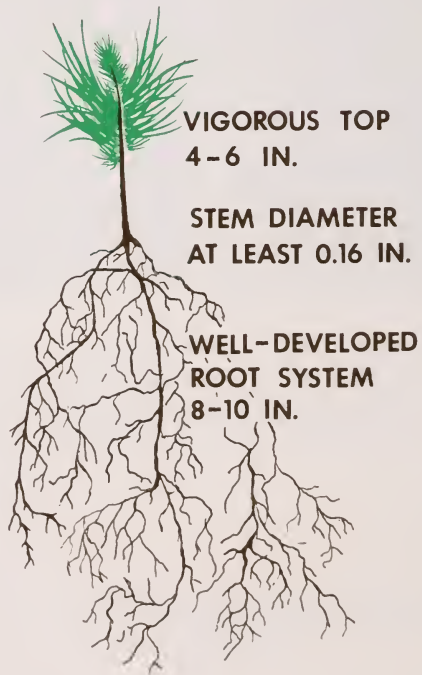
Seedlings must be adapted to the environment of the planting site. This requirement is usually met if **the** seed was collected from trees growing within a radius of 100 miles and an elevation within 1,000 feet of the plantation.

SEEDLING QUALITY

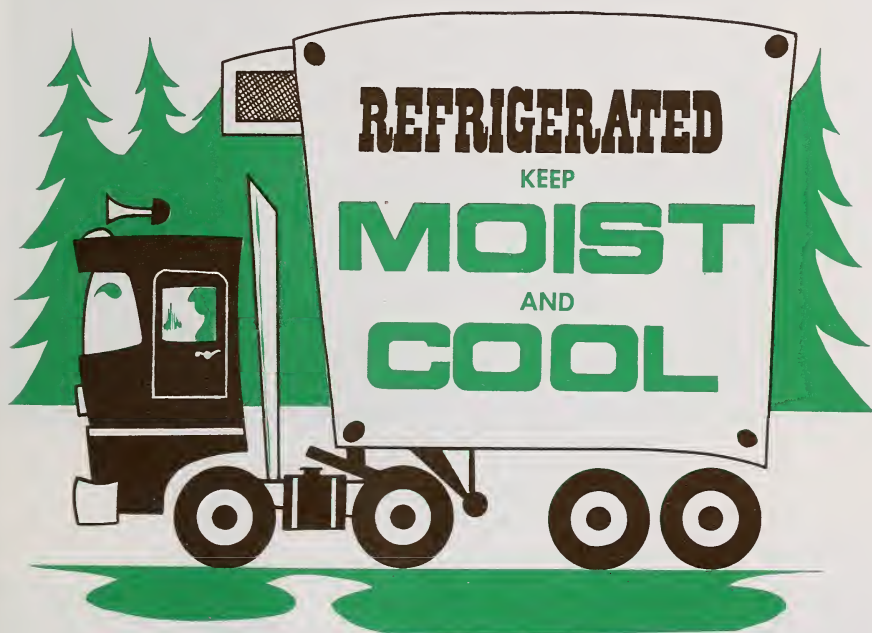
Seedlings are graded at the nursery for size and quality. Those that are too small, damaged, or diseased are destroyed.



This high-quality ponderosa pine is a sample of the kind of seedling you should plant. True firs should have about the same specifications. Douglas-firs and spruces will be slightly smaller.



Remember, the young seedlings must be kept cool and moist until planted. They were delivered to you alive and healthy. Keep them that way.



Tree shipments from the nursery should be geared to your planting needs. Even so, you will need to keep some in temporary storage. For this, a refrigerated truck or room, a cool, moist cellar, or simply packing them in snow (if available) will keep plants alive. Heel-in beds are least desirable for temporary storage.

TREE SPECIES

The general rule is to plant those species native to the planting site. Introduced species may not be adapted to the new environment. Nearly all plantings in the past have been with ponderosa pine for wood products. Future plantings may show an increased use of other species for a variety of purposes.



THE RIGHT PLACE



The land manager decides which general area is to be planted. Not all parts may be suitable or desirable to plant. Your job is to: (1) select the specific areas to plant, (2) prepare them for planting, and (3) choose the best spots for each tree.

SELECT AREAS

The best areas are those which were previously timbered. Numerous stumps identify these areas. Maps showing vegetation type or land form are very useful.

Perhaps you will find areas that show no evidence of tree growth. There may be good reasons for this. It could be a frost pocket or a wet spot. Pocket gophers and prairie dogs could be the reason. If so, it would be best to leave these areas as "natural meadows."



PREPARE AREA

One of the main reasons why plantations sometimes fail is inadequate site preparation. So, do a **complete** job of killing the grass, weeds, and brush. Partial site preparation is **not** adequate. Competing vegetation may be destroyed by bulldozing, spraying, burning, or a combination of these ways:



Bulldozing is preferred to spraying in brush. Work on the contour to minimize erosion. Slopes should be contour furrowed.



Spraying is one of the most effective ways to kill grass and weeds.



Burning is the least effective way, but may be used effectively in combination with spraying to consume dead material that interferes with planting.

THE BEST SPOT

After the area is prepared, you will have numerous spots to plant trees. Take advantage of shade cast by stumps, logs, or surface rocks. Do not plant a tree in a depression subject to flooding or silting, or on a hummock which will dry out rapidly. Also, avoid setting a tree in a hole which cannot be dug deep enough because of some obstruction such as a large rock.



THE RIGHT TIME

Spring is the best time to plant in the Southwest—usually from late March to early May. Check with your local weatherman before planting after the second week in May.

Fall is second choice—usually from first of November to early December. Fall may be the best time to plant some high-elevation sites that are inaccessible until late spring. Don't start planting too early in the fall. Wait until the seedlings have hardened off and rains have wet the top foot of soil.

JANUARY

1	2	3	4	5	6
7	8	9	10	11	12
13	14	15	16	17	18
19	20	21	22	23	24
25	26	27	28	29	30
31					

FEBRUARY

			1	2	3
4	5	6	7	8	9
10	11	12	13	14	15
16	17	18	19	20	21
22	23	24	25	26	27
28					

MARCH

				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

APRIL

1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

MAY

			1	2	3	4	5
6	7	8	9	10	11	12	
13	14	15	16	17	18	19	
20	21	22	23	24	25	26	
27	28	29	30	31			

JUNE

					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

JULY

1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

AUGUST

				1	2	3	4
5	6	7	8	9	10	11	
12	13	14	15	16	17	18	
19	20	21	22	23	24	25	
26	27	28	29	30	31		

SEPTEMBER

						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30						

OCTOBER

		1	2	3	4	5	6
7	8	9	10	11	12	13	
14	15	16	17	18	19	20	
21	22	23	24	25	26	27	
28	29	30	31				

NOVEMBER

				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	

DECEMBER

							1
2	3	4	5	6	7	8	
9	10	11	12	13	14	15	
16	17	18	19	20	21	22	
23	24	25	26	27	28	29	
30	31						

THE RIGHT WAY



Trees may be planted by machine or hand.



The following illustrations show the steps you should follow in planting with a mattock or planting bar. The planting bar and dibble should **not** be used in heavy soils.

MATTOCK PLANTING



1. Remove litter and dry soil.

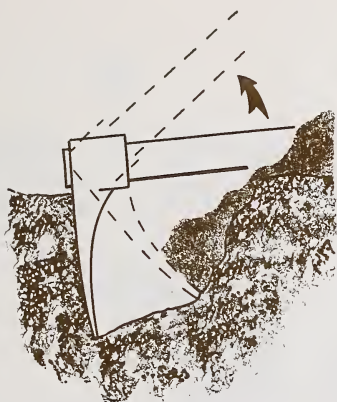


4. Set seedling at correct depth.



7. Firm soil around seedling.





2. Dig hole to full depth of roots.



3. Remove ONE seedling from planting bag.

5. Fill bottom half of hole with moist soil and pack.



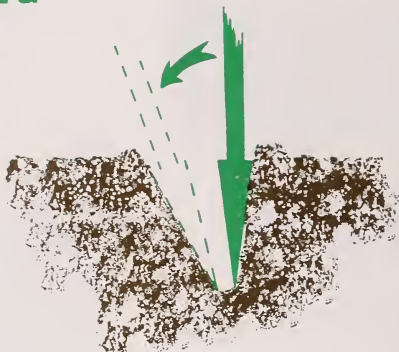
6. Fill top half of hole with moist soil and pack.



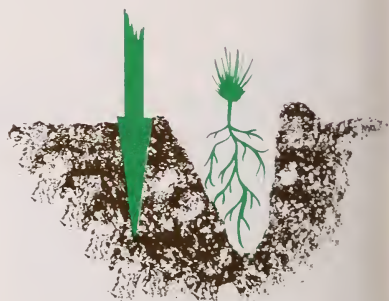
8. Push litter and loose soil around seedling as a mulch.

DIBBLE OR BAR PLANTING

1. Insert bar and pull toward planter.



3. Insert bar 2 inches from seedling.

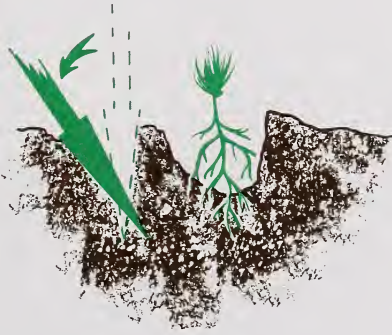


5. Push handle of bar toward tree to firm soil at top.

**2. Remove one seedling
and set at correct depth.**



**4. Pull handle of bar
toward planter to firm
soil at bottom of roots.**



**6. Fill in last hole by
stamping with heel.**



**7. Firm soil around
seedling with feet.**



MACHINE PLANTING



Important things to remember in machine planting include:

1. **Planting depth.**—Adjust coulter and trencher so trees can be placed at correct depth with root fully extended.
2. **Pack soil.**—Adjust packing wheels so soil is pressed firmly around roots.
3. **Trees in hand.**—Remove no more than 10 to 15 trees from tray at any one time.
4. **Trees in tray.**—Keep roots moist at all times.

TREE SPACING

Spacing specifications are set by the land manager. In the past, trees were generally planted 8 feet apart. On the better sites, he may decide to increase this to 10 or 12 feet. On poorer sites or steep slopes, he may decide on a closer spacing. In special-purpose plantations, such as for Christmas trees, a spacing of 4 to 6 feet would be desirable. As a planter, you are not expected to follow any strict adherence to a regular pattern. Pick the best spot at the approximate specified distance.

SUCCESS

Planting can be successful in the dry Southwest. Some excellent plantations demonstrate what is possible when the entire job is done with the **right stock**, in the **right place**, at the **right time**, and in the **right way**. This guide will help, but the results depend on a job well done.



A successful ponderosa pine plantation after 50 years.

Caution: If you use HERBICIDES, apply them only when needed and handle them with care. Follow the directions and heed all precautions on the container label. If herbicides are not handled or applied properly, or if unused portions are disposed of improperly, they may be injurious to humans, domestic animals, desirable plants, honeybees and other pollinating insects, fish or wildlife, and may contaminate water supplies.

**Here's How —
A Guide to Tree Planting in the Southwest**

by

Gilbert H. Schubert¹

Robert W. Pearl²

L. J. Heidmann¹

Footnotes

¹Principal Silviculturist and Associate Silviculturist, respectively, for the Rocky Mountain Forest and Range Experiment Station. They are located at Flagstaff in cooperation with Northern Arizona University; central headquarters maintained at Fort Collins in cooperation with Colorado State University.

²Timber Staff Officer, Timber Management, Region 3, U.S. Forest Service, Albuquerque, New Mexico. He is now located in Division of Timber Management, Forest Service, Washington, D.C.

Rocky Mountain Forest &
Range Experiment Station
240 West Prospect Street
FORT COLLINS, COLORADO 80521

POSTAGE AND FEES PAID
U.S. DEPARTMENT OF AGRICULTURE

OFFICIAL BUSINESS

